NOTES, ABSTRACTS, AND REVIEWS.

SIMULTANEOUS CLOUD PHOTOGRAPHS.

(Abstract.)

A circular letter from the National Meteorological Office of France announces an interesting plan for the photographing of the sky and clouds simultaneously from a large number of meteorological stations.

As set forth in this circular, the concept of a cloud system permits of placing in a single group the numerous states of the sky observed simultaneously over a wide extent. It thus furnishes a scientific basis for the classification and rational nomenclature of all the different forms of clouds. In this nomenclature the name of each kind of cloud will indicate the part it has in the vast scheme which constitutes the cloud system. In order, then, to establish such a classification effectively, it will be necessary to study the relation of all possible cloud forms in the various classes of the system.

The proposed program is divided into two parts. First, in the period beginning January 15 and ending January 21, 1923, it is proposed to photograph the sky simultaneously at all meteorological stations in France, including occupied Rhine territory, as nearly as possible at the time of the regular meteorological observations, namely, at 9 a. m. and 3 p. m. If this experiment proves successful it is hoped to extend the campaign by asking the cooperation of other countries and also the masters of trans-Atlantic liners. In this part of the program it suggested that the most opportune time would be about the occurrence of the 1923 autumnal equinox and that not less than three records should be obtained each day. The hours recommended are 7 a. m., 1 p. m., and 6 p. m. Of course it is recognized that on account of insufficient light for phtotographing it may be nececssary to delay the morning observation slightly or to advance the evening observation.

The data accompanying each negative should include the following: Date and hour of exposure; direction toward which the objective is pointed and its angular elevation; and finally the colors of the clouds. Furthermore, it is desirable that these notations accompanying the negatives should give accurate details concerning the clouds observed so that any defects in the developed photographs may be offset.—*H. L.*

THE INFLUENCE OF MOUNT ETNA ON FREE-AIR CURRENTS.

By FILIPPO EREDIA.

[Author's abstract from *Atti della Reale Accademia Nazionale dei Lincei*, Apr. 2, 1922, pp. 251–254.]

In a note presented to the Accademia Nazionale de Lincei there have been examined the results obtained from pilot-balloon soundings made at Catania, Sicily, between the months of April, 1912, and July, 1915.

Upon arranging these soundings by seasons, it appears that from 2,400 to 4,500 meters the northwest winds predominate. In the zone between 1,200 and 2,100 meters the prevailing wind varies according to the season, but with a prevalence of winds of the first quadrant,[1] particularly between 1,800 and 2,100 meters. Below 1,200 meters east winds predominate.

Classified according to the angle which the mean wind direction makes with the meridian, it is concluded that in winter the winds of the fourth quadrant are predominant, being from the west below 1,800 meters and from the northwest at higher elevations. In the spring, directions of the second quadrant prevail up to 900 meters; above this elevation to 1,500 meters winds of the third quadrant prevail, with winds of the fourth quadrant still higher.

In summer we find winds of the second quadrant up to 900 meters, winds of the first quadrant from that elevation to 1,200 meters, and northwest winds above 1,500 meters. In autumn up to 900 meters winds of the first quadrant predominate and above that elevation northwest winds prevail.

The conclusions of Prof. A. Ricco, based upon observations of the smoke of Mount Etna, concerning the movement of the upper currents, are thus confirmed.

Arranging the wind speeds for altitude intervals of 150 meters, it is evident that up to 1,800 meters the increase of speed with altitude is similar for all seasons; above this altitude the increase of speed is most rapid in summer and least rapid in winter. With the exception of spring, there is a diminution of speed at 3,600 meters, which is most strongly marked in summer.

Neglecting the elevations below 300 meters, in which the speeds are altered by the surface, the wind velocity can be represented by the formula:

$$\log V = a - b \log H$$

in which the constants a and b have the following seasonal values:

	Winter.	Spring.	Summer.	Autumn.
a	1.84	2.19	3.45	2.27
b	0.37	0.45	0.82	0.49

The wind speed is greater in summer than in winter and it seems that this phenomenon is related to the turning of wind with altitude. The lowest values of wind speed correspond to winter, when the winds are prevailingly northwest; in autumn the turning of wind is weak, and there is a sensible increase of speed; in spring and summer the turning of wind is most decided and there is a large increase of speed with increase of altitude.

The greater increase of summer compared with spring may be attributed to the great radiation of the massif of Mount Etna in that season which produces a more rapid diminution of air density with altitude, corresponding to the conclusions of Egnell, that the wind speed is inversely proportional to the density.[2]

ACCURACY OF PHOTOGRAPHIC DETERMINATIONS OF AURORAL LIGHTS.[3]

This monograph deals with the accuracy of photographic determination of auroral lights with base lines several tens of kilometers in length. The maximum departures of individual determinations from the averages from three base lines are from 1.5 to 2.3 per cent. The differences between the averages determined by two independent methods for reducing the observations amount to but 5 per cent. The plates show different types of auroras photographed in southern Norway.—*C. F. B.*

[1] Evidently the author regards as belonging to the first quadrant those winds blowing from azimuths 0° to 90°,—0° being north and azimuth being measured clockwise.

[2] It is suggested that the heating of the Sahara in summer would induce stronger free-air pressure gradients than obtain in winter, and this would account also for the increase recorded.

[3] *Notes relative aux aurores boreales*, by Carl Störmer, Geof. Pub., Vol. II, No. 8, Kristiania, 1922. 15 pp., 8 pl.